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EXAMINER

BRAHAN, THOMAS J

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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/786,202
Filing Date: February 25, 2004
Appellant(s): DELAGO, PIERRE C.

Stuart R. Hemphill
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 14, 2008 appealing from the Office action mailed June 4, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct. However it is noted that although the rejections of the independent claims 62-66 are argued under separate headings, each of these arguments state that the dependent claims are allowable based solely on the argument that the independent claim 56 is allowable. Therefore all of the claims under appeal stand or fall together as a group with claim 56.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following U.S. patents are relied upon by examiner as evidence in the rejection of the claims under appeal.

13,976	Burnett	December 25, 1855
1,582,274	Kaltenbach	April 27, 1926
2,069,471	Baker	February 2, 1937
2,966,752	Wampach	January 3, 1961
3,292,981	Zaugg	December 20, 1966
4,061,230	Goss et al	December 6, 1977
4,395,160	deJong	July 26, 1983
4,723,852	Ehret	February 9, 1988

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 56-61, 64 and 67-69 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wampach in view of Kaltenbach. Wampach shows a crane comprising:

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a vertical post (cylindrical hub 33) including a post bearing surface forming at least a partial arc about a vertical axis of the vertical post;

a superstructure (swing bed 5) pivotal about the vertical post (33) and including a boom foot (at 9) having a pivot point (9);

a boom (boom 8) extending from the boom foot and pivotable in a vertical plane about the pivot point (9) in response to one or more lines (cable 10) extending between the boom (8) and a swivel-post head (at 97) near a top of the vertical post (as near is a relative term); and

a series of rollers (rollers 34) encompassing at least a segment of the post bearing surface, each roller (34) including a rotational axis generally parallel to the vertical axis of the vertical post (33) and a roller surface in rolling contact with the post bearing surface.

Wampach varies from the claims as rollers (34) are not arranged as a roller chain. Figure 13 of Kaltenbach shows a crane roller chain encompassing a crane post bearing surface comprising:

a plurality of rollers (rollers 26) arranged in a pivotally-linked sequence, each roller (26) including a rotational axis generally parallel to the vertical axis of the vertical post and a roller surface in rolling contact with the post bearing surface, wherein the rollers are distributed with equal spacing on an arc along the post bearing surface with at least 180 degrees between a first roller and a last roller;

a first anchor (on of the levers 29) coupled to the crane superstructure and operably, pivotally-linked to the first roller; and

a second anchor (the other lever 29) coupled to the crane superstructure and operably, pivotally-linked to the last roller; and the first and second anchors (29) being positioned to make the arc of the roller chain substantially symmetrical with respect to the vertical plane of boom motion and to tension the rollers against the post-bearing surface, whereby the pivoting action of the rollers maintains substantially equal distribution of radial loads from the boom across all rollers in the roller chain.

Kaltenbach teaches that the roller chain arrangement allows “slack to be taken up due to wear on the roller pins and controls the relative rocking motion between the superstructure and the tower”, see page 2, lines 104-109. It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the ring of rollers (34) of Wampach by forming them as a roller chain, as to have their mounting adjustable, as to allow slack to be taken up and to control the relative rocking of the upper and the lower works, as taught by Kaltenbach. Wampach has its boom pivot pin (9) above these rollers, as recited in claim 57. Wampach has a support collar (28) radially extending from the vertical post (33), an annular ring (36) extending from the superstructure, and a container ring including a plurality rollers (41) having rotational axes generally perpendicular to the vertical axis and wherein the rollers rollingly displace between the support collar (28) and the annular ring (36), as recited in claim 58. The container ring is below the roller chain, as recited in claim 59. When making the modification, the

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post bearing surface could be maintained as the outer surface of the vertical post as is shown in Wampach, as recited in claim 60. Alternatively, the modification could be made incorporating a rail, as Kaltenbach shows rails (25), see figure 5, as recited in claim 61. Kaltenbach has two rows of rollers, see figure 5, as to have one row considered as "back rollers", as recited in claim 64. Alternatively, see the rejection of claim 64 below. The rollers of the roller chain would encompass an arc of at least 270 degrees, as recited in claim 67, and would have a spacing between 2 and 20 degrees between each roller, as recited in claim 68, and which would be approximately 15 degrees, as recited in claim 69.

Claim 62 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wampach in view of Kaltenbach, as applied above to claim 56, and further in view of deJong. Wampach, as modified, shows the basic claimed bearing arrangement, but varies from claim 62 by not having V-shaped rollers. DeJong teaches that conical and V-shaped rollers are art recognized equivalents, see the end of column 11. It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the bearing arrangement of Kaltenbach by using V-shaped rollers and a V-shaped rails instead of fiat rollers and fiat rails to hold the rollers vertically, as taught by deJong.

Claim 62 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wampach in view of Kaltenbach, as applied above to claim 56, and further in view of Ehret. Wampach, as modified, shows the basic claimed bearing arrangement, but varies from claim 62 by having flat bearing surfaces on the rollers and on the track instead of having arcuate bearing surfaces. Ehret shows a similar crane roller in figure 2 with fiat bearing surfaces and another roller bearing chain in figure 4 which has V-shaped bearing surfaces. It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the roller arrangement of Wampach by having V-shaped bearing surfaces on the rollers and the tracks, as to distribute the loading on the bearings, as taught by Ehret.

Claim 63 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wampach in view of Kaltenbach, as applied above to claim 56, and further in view of Zaegg or Baker. Wampach, as modified, shows the basic claimed bearing arrangement, but varies from claim 11 by having flat bearing surfaces on the rollers and on the track instead of having arcuate bearing surfaces. Zaegg shows a similar roller bearing chain in figure 3 with flat bearing surfaces and another roller bearing chain in figure 1 which has arcuate bearing surfaces. Baker shows a similar roller bearing chain in figure 6 with flat bearing surfaces and another roller bearing chain in figure 4 which has arcuate bearing surfaces. It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the roller arrangement of Wampach by having arcuate bearing surfaces on the rollers and the tracks, as these are art recognized equivalent structures, as taught by Zaegg or as taught by Baker.

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Claim 64 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wampach in view of Kaltenbach, as applied above to claim 56, and further in view of Goss et al. Wampach, as modified, shows the basic claimed bearing arrangement, but varies from claim 64 by not having an additional "back roller" which bears against the post at a location distinct from the roller chain. Goss et al shows a similar crane bearing with rollers (114, 115, 122a and 122b) mounted on pivoted linkages forming a chain at the front or boom side of the superstructure and idler rollers (130 and 132) fixedly mounted on the back side of the superstructure, as to have back rollers. It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the roller arrangement of Wampach by using a pair of fixed "back rollers", as to have some fixedly mounted rollers for taking high stresses, as taught by Goss et al.

Claims 65 and 66 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wampach in view of Kaltenbach, as applied above to claim 56, and further in view of Burnett. Wampach, as modified, shows the basic claimed bearing arrangement, but varies from claims 65 and 66 by not having a containment pad/flange for the rollers. Burnett shows a similar crane having a roller chain (E) with rollers (v) riding on a containment pad/flange (circular way x). It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the bearing arrangement of Wampach by providing the rollers with a containment pad, to prevent displacement of the rollers in a vertical direction, as taught by Burnett. 23.

(10) Response to Argument

Appellant argues in the first paragraph on page 10 of the brief that there are fundamental differences between the Wampach and Kaltenbach references because their load bearing principles. However this is just conjecture by the appellant. The brief alleges that the anti-friction roller set of Wampach does not carry significant overturning forces. This argument is wrong for two reasons. First, the rollers (34) of Wampach do in fact carry the loads. Column 13 lines 16-25 of Wampach recite:

The novel construction of the pivotal mounting of the swing bed 5 on the supporting structure, such as the truck frame 2, including the hook rollers 44, house rollers 41, and the vertically disposed rollers 34, shown in figures 2 and 3, is important in that these rollers cooperate with the vertical hub 33 and plates 28 and 36 to provide freely rotatable mounting for the swing bed, whereby the swing bed and boom may be freely rotated about axis a-a, at all times, with minimum power, regardless of the load carried by the boom.

Contrary to appellant's remarks, and to common sense, all of rollers of Wampach carry a load, even the vertically disposed rollers (34). Also, as stressed above by the reference, it is important that the swing bed be freely rotatable. Therefore even if these rollers were purely anti-friction bearings with no loading, the adjustment feature of Kaltenbach, to have roller slack taken up due to wear on the roller mountings

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and to controls the relative rocking motion between the swing bed and its hub would be readily and the tower would be applicable and advantageous to the Wampach bearing arrangement.

Appellant argues in the second paragraph of page 10 of the brief that neither reference teaches or suggests certain of the expressly recited features of the claims, as the crane of Wampach does not have a roller chain. In response, the roller chain structure is clearly taught by Kaltenbach. It is clearly shown in figure 13 and the reference clearly teaches on page 2, lines 104-109 that:

This arrangement allows the slack to be taken up in the chains due to wear on the roller pins or in the links, and also controls the amount of relative rocking motion between the skirt and tower due to the unbalanced load.

The secondary reference of Kaltenbach has all of the roller chain structure recited in the claims and includes a clear motivation for using it in similar roller rings.

Appellant argues beginning at the bottom of page 10 of the brief that Kaltenbach does not teach or suggest a roller chain positioned for substantial symmetry relative to a vertical plane of boom motion. However this symmetry is not recited in claim 56, and is specific to claim 64. Claim 64 has been rejected in two manners, the first being that both references do show overall even roller spacing with the placement of the rollers at the locations broadly specified in the claims. Claim 64 has also been rejected with an additional reference of Goss et al which teaches placing the roller chain along the boom side of the bearing hub with larger rollers spaced along the side opposite of the boom.

Page 11 and the top half of page 12 of the brief summarizes the Wampach reference by repeating the lack of a chain connection at the ring of vertically disposed rollers 34 and by alleging that the reference is not concerned with overturning forces. In response, all the rollers of these combined roller and thrust bearing arrangements carry some loading. The rollers would not be there if they were unloaded. And the chain adjusting device of Kaltenbach would be applicable to all rings of rollers as they all would require adjusting after wear.

The lower half of page 12 of the brief discusses the loading of the Kaltenbach crane stating that it is different from the loading of the Wampach crane or of appellant's crane. In response, it does have slightly different bearing locations as to not be an anticipation of the appellant's claims. However the reference is only used for its adjustable chain teaching with the primary reference of Wampach having the appellant's recited bearing arrangement.

Appellant argues on page 15 of the brief that the PTO has not established a *prima facie* case of obviousness under 35 U.S.C. § 103(a) arguing an absence of a teaching or suggestion supporting the

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combination. However, as detailed in the rejection, the Kaltenbach reference has a clear teaching; more than just a suggestion, that placing roller bearings on a chain that has adjustable take up devices will permit the adjusting of roller arrangement due to wear.

Appellant argues at the bottom half of page 15 of the brief that the references should identify a reason for the combination. Again appellant is continuing to deny what is clearly taught by Kaltenbach. As the primary reference of Wampach has a ring of rollers about its hub, and the chain adjusting feature taught by Kaltenbach is available in the same field of endeavor, one of ordinary skill in the art would implement this predictable variation as to have 35 U.S.C. § 103 bar patentability.

Appellant argues on page 16 of the brief that as the vertical rollers on Wampach function differently, the references cannot be combined as in the rejection. However any difference in the way one vertical roller would function as opposed to how a similar vertical roller would function is purely speculative. Even if the original rollers of Wampach had less loading capabilities, perhaps that would be an additional reason for the modification, as to improve the loading characteristics of the crane, instead of being a teaching away from the combination. Again, however, whatever the manner in which the vertical and horizontal bearings of Wampach share the loads, the teachings of Kaltenbach are readily applicable to the ring of vertical rollers on the primary reference.

At the page 17 through page 18 of the brief, appellant repeats the argument that Kaltenbach does not teach the claimed location and alignment of the appellant's invention. In response, claim 56 recites that the anchors are placed to make the rollers "substantially symmetrical with the vertical plane of the boom". As the spacing between the rollers of Kaltenbach is substantially the same between all of the rollers, including the rollers at the adjustment linkages, the rollers are substantially symmetrical with all vertical planes passing through the axis of rotation of the crane, including the vertical plane of the boom. Again the exact vertical roller positioning is found in claim 64, and which has been rejected in two manners, once just using the structures shown in Wampach and in Kaltenbach and a second time adding the reference of Goss et al. Goss et al has the exact claimed arrangement of a roller chain along the boom side of the bearing hub and two larger rollers spaced along the side opposite of the boom.

Appellant argues at the top of page 19 through the top of page 20 of the brief that "the positioning of the anchor levers 29 in Kaltenbach is not explained" and calls the placement of the roller chain as "asymmetrical". This is wrong. Kaltenbach shows equally spaced rollers. They are not asymmetrical. Again, the limitation regarding the position of the rollers was included in the rejection of claim 64.

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Appellant argues at the bottom of page 20 of the brief that the rejection of claim 62, which includes the additional teachings of deJong or of Ehret, does not cure the imagined deficiencies of Wampach combined with Kaltenbach. The appellant is not separately arguing the rejection of claim 62, as to have it stand or fall with claim 56.

Appellant argues at the bottom of page 21 of the brief that the rejection of claim 63, which includes the additional teachings of Zaugg or of Baker, does not cure the alleged deficiencies of the rejection using Wampach combined with Kaltenbach. The appellant does not separately argue the rejection of claim 63 as to have it stand or fall with claim 56.

Appellant argues at the top of page 22 of the brief that the rejection of claim 64, which includes the additional teachings of Goss et al, does not cure the deficiencies of the rejection based upon Wampach combined with Kaltenbach. The appellant does not separately argue the rejection of claim 64 as to have it stand or fall with claim 56. However it is noted that this rejection does address the exact locations of the vertically disposed rollers as the Goss et al reference teaches back rollers.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

(12) Conclusion

For the above reasons, it is submitted that the rejection based upon the combination of the crane reference of Wampach which is modified according to the teachings of the crane reference of Kaltenbach, has established a *prima facie* case of obviousness under 35 U.S.C. § 103 and the rejection should be upheld. As the remaining rejections were not separately argued, it is submitted they should also be upheld, as standing or falling together with claim 56.

Respectfully submitted,

/Thomas J. Brahan/
Primary Examiner, Art Unit 3654

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